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# The Fertilizer Situation for 1962-63



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(Photograph of granular triple superphosphate for cover, compliments Crawford and Porter)

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## THE FERTILIZER SITUATION FOR 1962-63

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Supplies of fertilizer materials for 1962-63 are expected to total 9,396,000 tons of plant nutrients: - nitrogen (N), phosphate ( $P_2O_5$ ) and potash ( $K_2O$ ). This figure represents an increase of 9.1 percent over 1961-62.

Production trends for the first six months of the fertilizer year reflect the optimism of producers of plant nutrients. Production in the fall of 1962 was one of the highest on record. The level of inventories stored at plants December 31st was not excessive. The size of inventories in out-of-plant storage is unknown but an appreciable part of the record quantity of anhydrous ammonia produced in December is assumed to be in such storage.

Extremely cold weather in January and February cut production in some areas because of the demand for natural gas for heating. This loss in production was not serious because production capacity is more than sufficient to supply needs. The strain on the distribution system to make immediate deliveries on spot orders just ahead of the main planting season is more likely to be a bottleneck than ability to produce the primary materials. Even though storage and handling equipment have been expanded and improved, increased requirements are concentrated in May and June.

Estimates in this report are based on the trends in production and stocks during the first six months of the fertilizer year (July to December) and on foreign trade statistics supplemented by trade events which may influence the total supply of plant nutrients.

### Nitrogen (N)

Supplies of nitrogen for U.S. fertilizers in 1962-63 are expected to total 3,783,000 tons, an increase of 10.3 percent over 1961-62 (table 1).

Production of anhydrous ammonia during the first six months of the current fertilizer year followed a seasonal pattern much like previous ones. Again it was at a record level with additional producers involved (figure 1). Output each month was well above the corresponding month last year. That in December was greater even than production last May, the record up to that time. Anhydrous ammonia for both direct

Note: The fertilizer year is from July 1 through June 30.

Table 1. -- NITROGEN: estimated supply of nitrogen for fertilizer purposes, 1961-62 and 1962-63, United States and possessions

(1,000 short tons of N)

Item	1961-62 <u>1/</u>	1962-63
<u>Supply from domestic sources</u>		
Solids:		
Ammonium nitrate <u>2/</u>	484	498
Ammonium sulfate <u>2/</u>	334	347
Urea	195	226
All other solids	<u>295</u>	<u>356</u>
Total solids	1,308	1,427
Liquids:		
Ammonia (including aqua)	1,060	1,199
All Other	<u>959</u>	<u>1,019</u>
Total liquids	2,019	2,218
Total (solids and liquids)	3,327	3,645
<u>Imports</u>		
Ammonium nitrate	62	87
Ammonium sulfate	57	41
Urea <u>2/</u>	25	48
Ammonium nitrate-limestone mixtures	23	32
Sodium nitrate	78	56
Nitrogen solutions	22	17
All other	<u>70</u>	<u>72</u>
Total	337	353
<u>Exports</u>		
Ammonium nitrate	13	18
Ammonium sulfate	90	90
Urea	42	31
Ammonia (including aqua)	66	34
All other	<u>23</u>	<u>42</u>
Total	234	215
NET DOMESTIC SUPPLY	3,430	3,783

1/ Revised.

2/ Adjusted for estimated quantity going into non-fertilizer uses.

# MONTHLY PRODUCTION OF ANHYDROUS AMMONIA

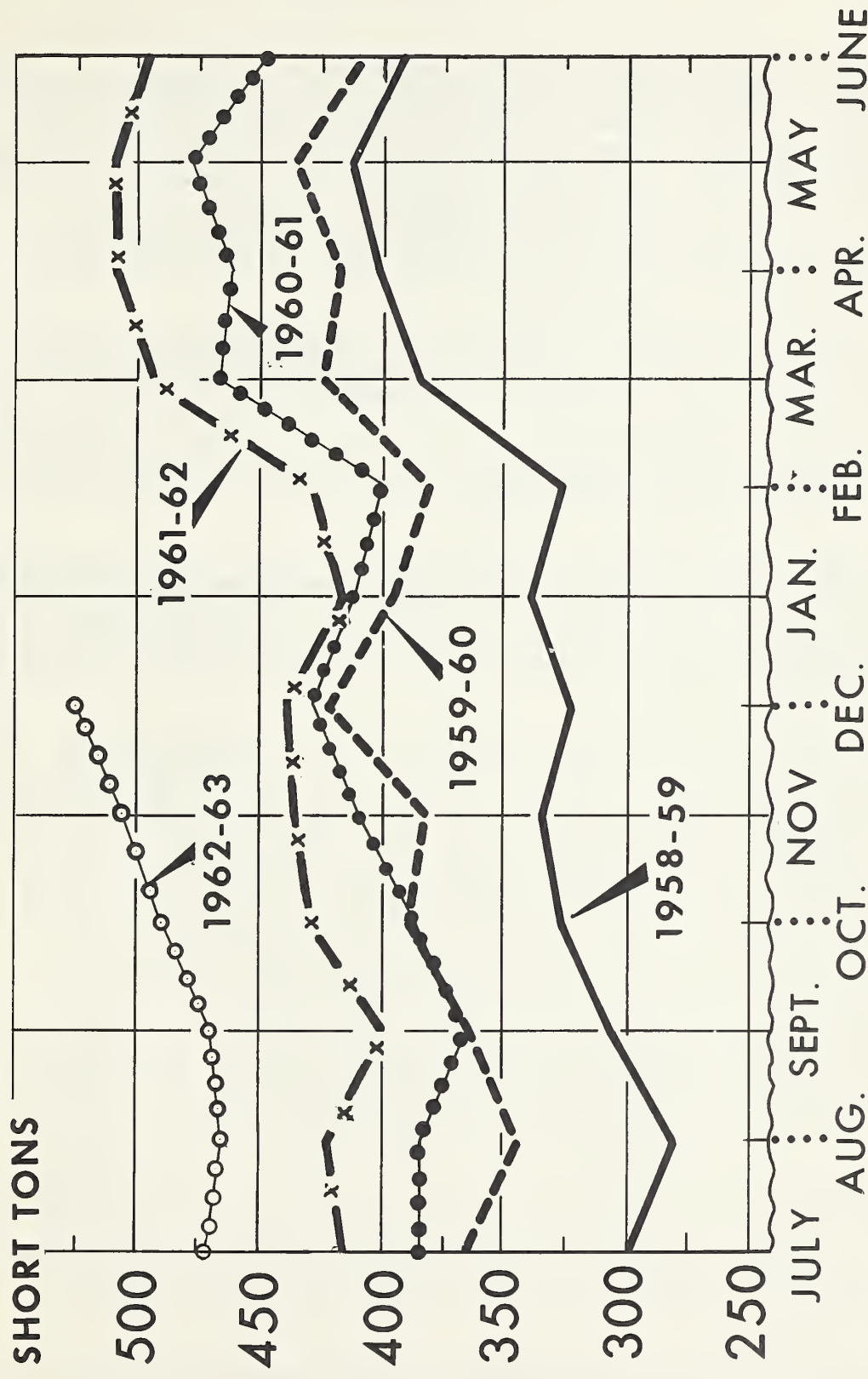


FIG. 1.



application and formulation of mixed fertilizers will probably be up about 13.0 percent. Production of nitrogen solutions is expected to be about 60,000 tons of N over 1961-62. Supplies of solid ammonium nitrate will be up about 3 percent. Ammonium sulfate supplies will be about 4 percent higher than last year. Coke-oven ammonium sulfate is expected to be down slightly, while synthetic (including byproduct other than coke-oven) is expected to be up. Urea production may be up as much as 16 percent. The tonnage of solid urea for fertilizer purposes will be increased by about 31,000 tons N over last year.

Imports of nitrogen are expected to be about 4.7 percent larger than in 1961-62. Ammonium nitrate, urea and ammonium nitrate-limestone mixtures will account for most of the increase.

Exports of nitrogen may be down about 8.1 percent from last year. Present indications are that anhydrous ammonia exports will be only about 50 percent of the 1961-62 figure.

Mexico has been the major export market for U.S. anhydrous ammonia but nitrogen plants coming on stream there have reduced the need for imports from the United States. U.S. exports of urea will be down, those of ammonium nitrate and other nitrogenous materials up. However, these trends may later show the effects of the maritime strike which disrupted shipping schedules.

U.S. capacity to produce anhydrous ammonia has risen to an estimated 6.5 million tons involving 69 plants. Ten plants came on stream during 1962 and early 1963. Eleven plants planned or under construction will add another 1.1 million tons. Eight existing plants being expanded will furnish another 350,000 tons. About 21 plants are producing solid fertilizer-grade ammonium nitrate, four of which came on stream during the calendar year 1962. Plans for six more solid ammonium nitrate plants have been announced or the plants are actually under construction. Urea plants number eighteen with a capacity of about 1.2 million tons of material. Plans for six more urea plants have been announced or the facilities are under construction, adding capacity for perhaps over 250,000 tons. Byproduct ammonium sulfate capacity other than coke-oven has been increased to meet the demands of expanded production of caprolactam for synthetic fibers.

### Phosphate ( $P_2O_5$ )

Supplies of phosphates for U.S. fertilizers in 1962-63 are expected to total 2,957,000 tons of  $P_2O_5$ , 3.8 percent higher than in 1961-62 (table 2).

The supply of normal and enriched superphosphate will be about the same or slightly less than last year. Production and foreign trade have



Table 2. -- PHOSPHATE: estimated supply of  $P_2O_5$  for fertilizer purposes, 1961-62 and 1962-63, United States and possessions

(1,000 short tons of available  $P_2O_5$ )

Item	1961-62 <u>1/</u>	1962-63
<u>Supply from domestic sources</u>		
Normal and enriched superphosphate	1,209	1,204
Concentrated superphosphate	1,031	950
Ammonium phosphate <u>2/</u>	404	534
All other <u>3/</u>	<u>402</u>	<u>477</u>
Total	3,046	3,165
<u>Imports</u>		
Concentrated superphosphate	10	33
Ammonium phosphate	42	54
All other	<u>35</u>	<u>24</u>
Total	87	111
<u>Exports</u>		
Normal superphosphate	26	26
Concentrated	226	230
Ammonium phosphate	22	54
All other	<u>9</u>	<u>9</u>
Total	283	319
NET DOMESTIC SUPPLY	2,850	2,957

1/ Revised.

2/ Liquid and solid ammonium phosphate shipped as such by primary producers.

3/ Includes ammonium phosphate (produced in combination with potash salts to make mixed fertilizers), nitric phosphates, sodium phosphate, wet base goods, calcium metaphosphate, natural organics, phosphate rock and colloidal phosphate, basic slag, and estimates of wet and furnace phosphoric acid for liquid and solid mixed fertilizers and direct application.

followed both the pattern and the level of the corresponding period in 1961-62. The trend in production of these forms of phosphates has been down for a number of years (figure 2).

Concentrated superphosphate supplies increased each year since 1945 until 1962, but appear now to have reached a peak. Supplies may be 8.0 percent less than last year, production and inventories both being down for the first six months of this fertilizer year. However, most concentrated superphosphate production is in plants sufficiently flexible to turn out  $P_2O_5$  in any other form desired for direct application or for use by mixing and bulk-blending plants. Imports from Canada are expected to be up over the previous year.

Higher production of ammonium phosphates is likely to more than compensate for a decrease in production of concentrated superphosphate. Ammonium phosphate production is expected to be up about 130,000 tons of  $P_2O_5$ .

Supplies of wet and furnace phosphoric acid for direct application and formulation of dry and liquid mixed fertilizers will again be up. The increase over 1961-62 may amount to as much as 100,000 tons of  $P_2O_5$  if present trends continue in the manufacture of concentrated superphosphate and ammonium phosphates.

# PRODUCTION OF SELECTED PHOSPHATIC FERTILIZERS

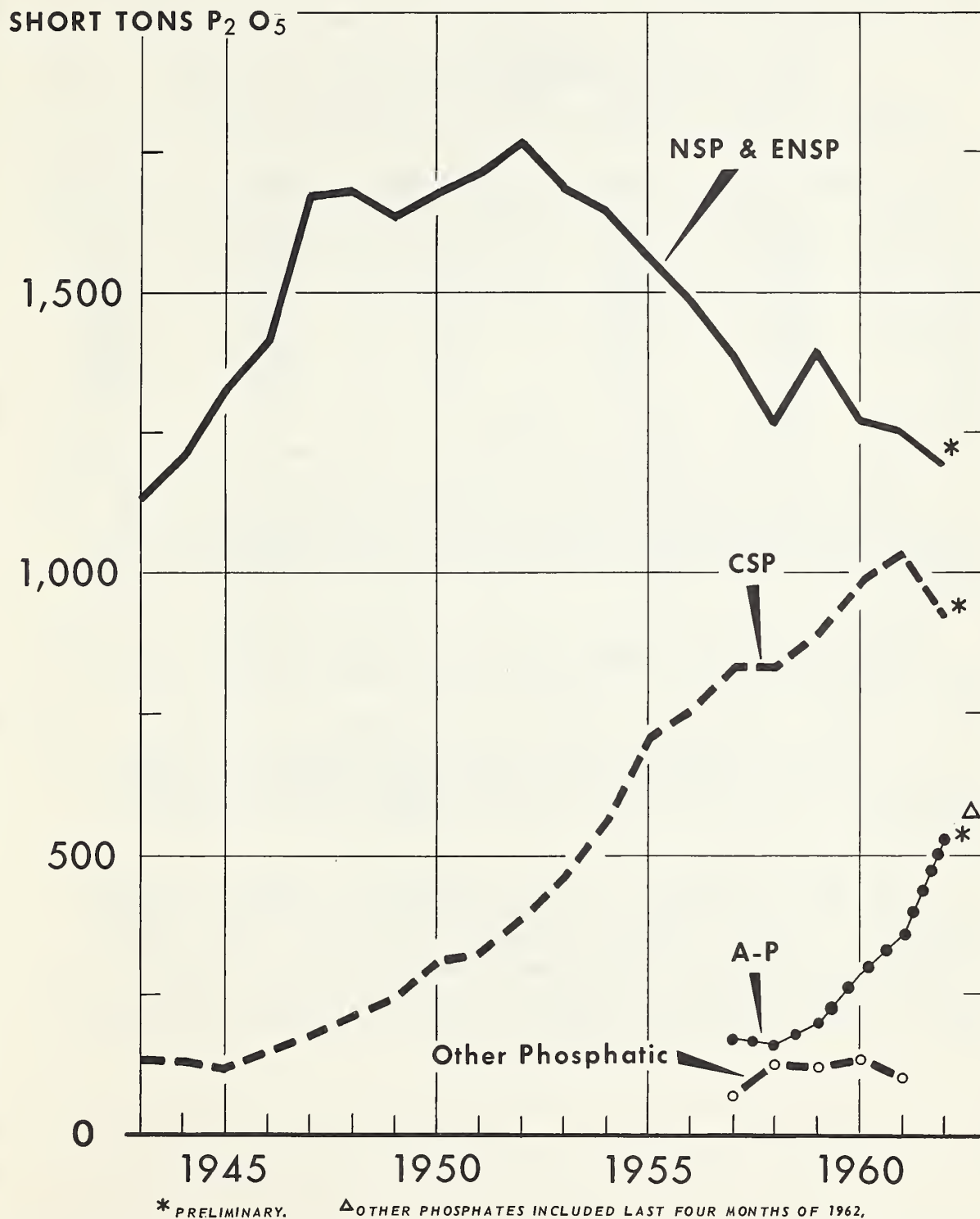


FIG. 2

The number of normal superphosphate plants reporting to the Bureau of the Census reached a peak in 1955 although production declined since 1952 (table 3 and figure 2).

Table 3. -- Number of normal superphosphate plants in continental United States reporting to the Bureau of the Census

Year	No. plants	Year	No. plants	Year	No. plants
1943	153	1950	200	1956	210
1944	157	1951	208	1957	202
1945	159	1952	207	1958	211
1946	161	1953	211	1959	209
1947	165	1954	213	1960	208
1948	179	1955	218	1961	198
1949	183				

Concentrated superphosphate capacity increased from 1,068,000 tons in 1960 to an estimated 1,367,000 tons of  $P_2O_5$  at the present time, largely through expansion of existing facilities. Modern plants producing normal superphosphate also manufacture the concentrated product at times.

Ammonium phosphate capacity is close to 1,000,000 tons of  $P_2O_5$ . About 56 percent of it is in new plants which came on stream since early 1960.

Wet process phosphoric acid capacity has increased 62 percent since January 1, 1960. This increase involves expansion of nine existing facilities and construction of seven new plants. Current capacity is about five times that in 1951.

The tremendous growth in U.S. consumption of ammonium phosphates for direct application during the period 1955-56 to 1960-61 is shown in Table 4. The term "ammonium phosphate" as commonly used includes monoammonium and diammonium phosphates, mixtures of the two or combinations with ammonium sulfate and/or ammonium nitrate. Ammonium phosphate is used in mixed fertilizers as well as for direct application.



Table 4. -- U.S. consumption of various grades of ammonium phosphate for direct application

<u>Grade</u>	<u>Fertilizer Year</u>					
	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
	: (s.t.)	: (s.t.)	: (s.t.)	: (s.t.)	: (s.t.)	: (s.t.)
	:	:	:	:	:	:
11-48-0	: 47,128	: 63,885	: 83,066	: 103,518	: 116,383	: 134,104
13-39-0	: 42,127	: 45,656	: 45,476	: 52,010	: 51,186	: 49,088
16-20-0	: 251,546	: 259,685	: 295,015	: 336,759	: 378,335	: 405,749
27-14-0	:	: 11,064	: 17,683	: 20,334	: 24,778	: 30,156
21-53-0	: 13,854	: 19,780	: 27,413	: 26,980	: 30,881	: 33,272
16-48-0	: 5,092	: 15,342	: 19,571	: 28,824	: 53,959	: 100,935
18-46-0	:	:	:	: 644	: 20,388	: 32,680
19-38-0	: 1,642	: 9,384	:	:	:	:
23-23-0	:	:	:	: 8,001	: 12,910	: 18,763
24-20-0	: 350	: 4,414	: 8,062	: 12,237	: 13,822	: 29,047
30-10-0	:	:	: 1,259	: 10,620	: 13,601	: 17,245
18-36-0	:	:	:	: 9,299	: 11,875	:
	:	:	:	:	:	:
Total	: 361,739	: 429,210	: 497,545	: 609,226	: 728,118	: 851,039
	:	:	:	:	:	:
N content	: 55,028	: 66,950	: 78,227	: 97,550	: 117,973	: 139,674
P <sub>2</sub> O <sub>5</sub>	: 99,841	: 124,253	: 144,747	: 177,300	: 217,977	: 261,851
	:	:	:	:	:	:

Source: "Consumption of Commercial Fertilizers and Primary Plant Nutrients in the United States," Agricultural Research Service, U.S. Department of Agriculture. Nitrogen and phosphate content calculated.

## Potash (K<sub>2</sub>O)

Potash supplies for fertilizers in 1962-63 will amount to about 2,656,000 tons of K<sub>2</sub>O, an increase of 13.7 percent over 1961-62 (table 5).

The annual delivery pattern was maintained in the first half of 1962-63 with the usual peaks and lows associated with seasonal discounts (figure 3). In 1961-62 the discount remained in effect until February 1, instead of January 1 as in the two previous years. Domestic deliveries during the early part of this fertilizer year were largely from inventory because of a two month strike at plants of six companies at Carlsbad, N. M., during June and July, 1962. The dock strike late in 1962 further affected deliveries for import and export. Even with these production and shipping difficulties, deliveries of potassium chloride during the first five months were 7.6 percent above the same period in 1961-62. Shipments for the rest of the year will come largely from current production. New production in Canada adds to the North American capacity which is available to the U.S. market. Potassium sulfate deliveries during the first five months were slightly higher than last year.

Exports of potassium chloride for the first six months were up about 8 percent over the same period last year. The total for the year, however, is expected to be only slightly above a year ago because of the presumed tighter supply situation on the domestic market for the rest of the year. Potassium sulfate exports for the first six months were about 50 percent of the corresponding period the previous year.

Imports from Europe are expected to be up about 15 percent from 1961-62. This material plus that from Canada will increase total potassium chloride imports to nearly double those of last year. Potassium sulfate imports are expected also to be up over last year.

Domestic capacity is currently estimated to be about 2,900,000 tons of K<sub>2</sub>O. A new facility in Utah is expected to start shipments during 1963. Still another new facility at Carlsbad, N.M., is scheduled to start production in 1964. Imports from Canada began arriving in September 1962.

Table 5. -- POTASH: estimated supply of  $K_2O$  for fertilizer purposes, 1961-62 and 1962-63, United States and possessions

(1,000 short tons of  $K_2O$ )

Item	1961-62 <u>1/</u>	1962-63
<u>Supply from domestic sources</u>		
Potassium chloride	2,386	2,547
Potassium sulfate <u>2/</u>	150	142
All other	20	20
Total	2,556	2,709
<u>Imports</u>		
Potassium chloride	198	367
Potassium sulfate <u>2/</u>	46	52
All other	38	30
Total	282	449
<u>Exports</u>		
Potassium chloride	465	480
Potassium sulfate <u>2/</u>	30	14
All other	8	8
Total	503	502
NET DOMESTIC SUPPLY	2,335	2,656

1/ Revised.

2/ Includes sulfate of potash-magnesia.

# DOMESTIC DELIVERIES OF POTASSIUM CHLORIDE, BY MONTHS

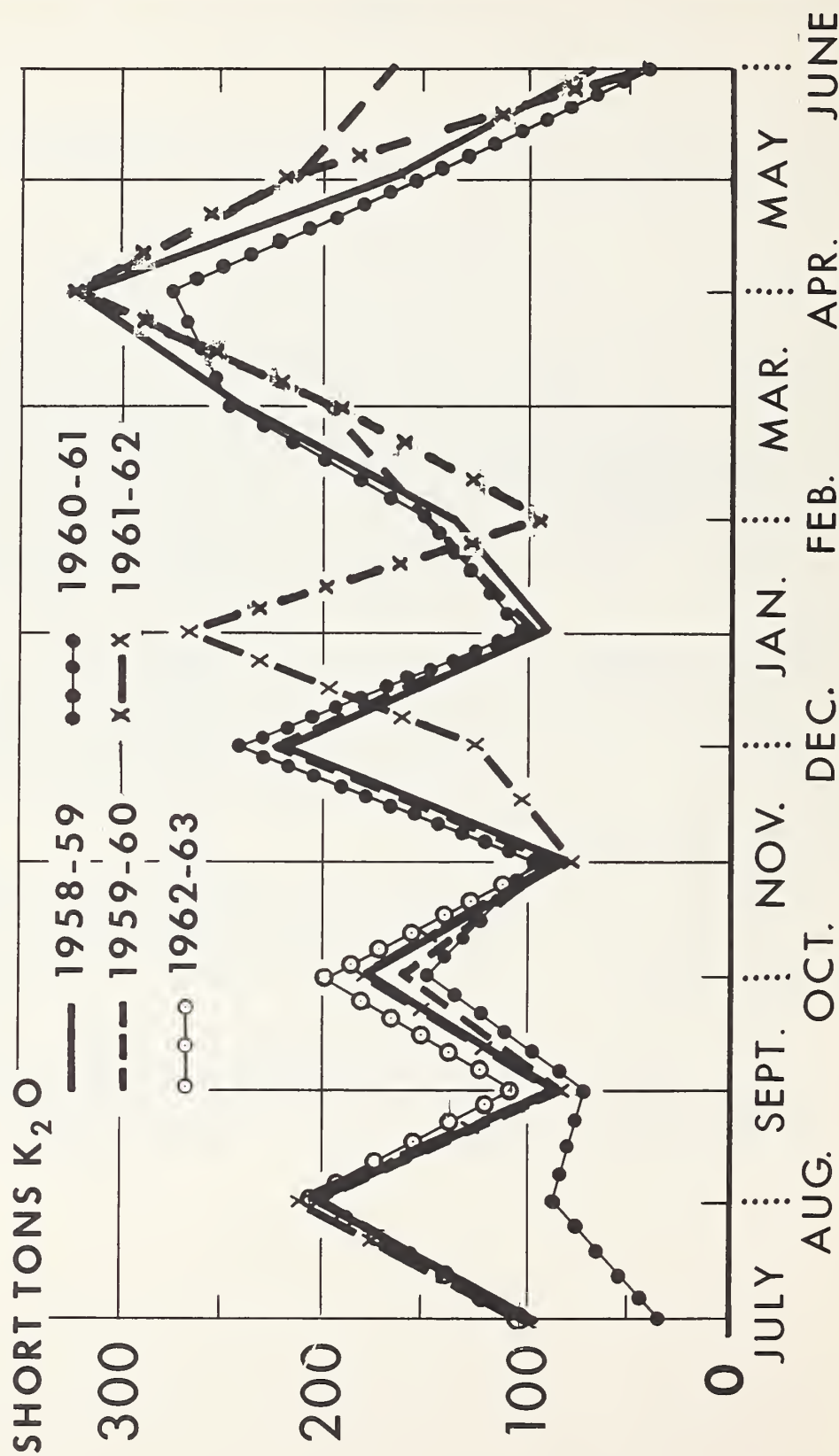


FIG. 3



### Bulk Fertilizers

Distribution of dry fertilizers in bulk has expanded in recent years (table 6). In some midwestern States there are over 100 bulk blenders of fertilizers in addition to a number of long established firms where bulk blending facilities have been installed. The practice is expanding into other areas in the United States, at the same time that use of liquid fertilizers is also growing.

Table 6. -- U.S. shipments of fertilizer in bulk

<u>Year</u>	<u>Dry</u>		<u>Liquid</u>	
	Mixtures	Straight material	Mixtures	Straight material
	(1,000 t.)	(1,000 t.)	(1,000 t.)	(1,000 t.)
1953-54	469	1,360	28	560
1958-59	1,267	1,475	464	1,704
1959-60	1,100	2,209	479	1,832
1960-61	1,357	2,490	531	2,244

Source: "Commercial Fertilizers," November 1962, report by U.S. Fertilizer Laboratory, Beltsville, Maryland

Aerial Application

The acres treated and quantity of dry fertilizers dispensed with aerial equipment have shown no marked trend since 1955. The quantity of liquid fertilizers so used has more than tripled (table 7).

Table 7. -- Acres treated and quantity of fertilizers dispensed by aerial application, continental U.S., 1952-1960

<u>Year</u>	<u>Acres treated</u>	<u>Fertilizers used</u>	
		<u>Dry</u>	<u>Liquid</u>
		(1,000 lb.)	(1,000 gals.)
1952		213,622	174
1953		257,056	128
1954		250,988	142
1955	2,576	325,984	809
1956	2,393	270,269	867
1957	2,879	322,228	1,791
1958		(Data not available)	
1959	2,967	293,272	2,179
1960	2,966	336,246	2,717

Source: "Aircraft in Agriculture, 1960," Federal Aviation Agency  
Washington 25, D.C.

### FOREIGN TRADE IN FERTILIZERS

The United States is the largest producer and consumer of each of the primary plant nutrients (N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O). U.S. production of nitrogen is more than twice and consumption more than three times that of any other country (table 8). The use of fertilizer nitrogen in the six States ranking highest in the United States is compared below with usage in countries ranking 9th to 16th in world consumption.

California	256,813 m.t.	Poland	251,300 m.t.
Nebraska	177,138 m.t.	East Germany	242,400 m.t.
Texas	163,793 m.t.	Netherlands	223,600 m.t.
Illinois	143,023 m.t.	India	215,000 m.t.
Indiana	127,166 m.t.	Korea	166,636 m.t.
Georgia	122,060 m.t.	U.A.R.	160,846 m.t.
		Czechoslovakia	145,151 m.t.
		Denmark	123,850 m.t.

Development of the U.S. fertilizer market has fully occupied most domestic producers. Foreign trade with the United States is most advantageous only where plants are located, as in Canada, near the border of the United States, or where specialty products are in demand in this country. The United States is still the leading importer of nitrogen fertilizers and ranks sixth as an exporter. In contrast the OECD countries exported nearly 40 percent of the nitrogen produced in 1960-61 (table 9). Imports of nitrogen by the OECD countries are largely from members, whereas nearly two-thirds of nitrogen exports are to non-members of OECD.

The United States produced about one-half the world total of phosphate rock in 1960-61. Outside the USSR other leading producers and exporters of phosphates are dependent on imported phosphate rock to meet production requirements (table 10). Morocco and Tunisia are important sources of phosphate rock for European producers. Three leading producers are among the top five importers of the rock.

Nine of the top 20 countries producing phosphates are members of OECD. Trade in phosphates by this group is more within OECD than is the case with nitrogen.

Potash is processed near ore deposits, the leading producers being those countries having potash-bearing deposits (table 11). Exceptions are guano deposits and byproduct potash. The United States is the leading producer and consumes over twice as much potash as any other country.

West Germany, France, Spain, Italy, Israel and United States are important producers of potash in the Free World. Production in Canada should soon rise to a level exceeding that of Spain. The USSR and East Germany are the only Iron Curtain countries which have significant production.

Table 8. -- NITROGEN: production, consumption and foreign trade of leading countries, 1960-61  
(metric tons of N)

	Rank	Production	Rank	Imports	Rank	Exports	Rank	Consumption
United States	1	2,680,000	1	252,000	6	193,000	1	2,734,241
West Germany	2	1,180,300	-	--	1	516,800	4	617,800
Japan	3	1,030,090	-	--	3	286,090	3	753,290
USSR	4	790,000*	-	--	13	53,000	2	769,000
France	5	670,400	18	22,400	12	82,000	5	564,900
Italy	6	653,480	-	--	2	311,896	7	332,150
United Kingdom	7	448,900	11	60,500	14	33,100	6	459,500
Netherlands	8	417,400	17	30,300	5	201,800	11	223,600
East Germany	9	334,117	-	--	10	113,967	10	242,400 1/
Belgium	10	278,433	-	--	7	179,244	20	99,690
Norway	11	275,700	2	219,300	4	219,300	-	--
Poland	12	270,239	-	--	-	--	9	251,300 1/
Canada	13	228,036 1/	-	--	8	175,935 1/	-	--
Austria	14	162,040	-	--	9	115,090	-	--
Chile	15	148,217 1/	-	--	11	100,800 1/	-	--
Czechoslovakia	16	133,264 1/	-	--	-	--	15	145,151 3/
Spain	17	109,653	4	154,542	-	--	8	275,206
India	18	96,118	7	99,103 2/	-	--	12	215,000*
Bulgaria	19	83,594	15	35,925 2/	-	--	19	100,560
Hungary	20	60,454	16	32,966 1/	15	31,025 3/	-	--
Sweden	-	--	10	61,499	-	--	17	105,856
Taiwan (Formosa)	-	--	12	60,490	-	--	18	103,147
United Arab Republic	-	--	6	121,226	-	--	14	160,846
Portugal	-	--	18	28,439	-	--	-	--
Korea	-	--	3	166,636 1/	-	--	13	166,636 1/
Denmark	-	--	5	139,450	-	--	16	123,850
Pakistan	-	--	13	59,288 1/	-	--	-	--
Brazil	-	--	14	51,811	-	--	-	--
Yugoslavia	-	--	8	79,025	-	--	-	--
Greece	-	--	9	61,741	-	--	-	--
Ceylon	-	--	19	27,050	-	--	-	--
Ireland	-	--	20	24,579	-	--	-	--
World Total		10,550,000		2,280,000		2,650,000		10,010,000

\*Unofficial figures

1/ 1959-60

2/ 1958-59

3/ Tons of product

Source: Fertilizers - An Annual Review of World Production, Consumption and Trade, 1961.  
Food and Agriculture Organization of The United Nations.



Table 9. -- European production, consumption and trade by OECD countries, 1959-60 1/

Year	Production	Imports		Exports		Consumption
		OECD	Other	OECD	Other	
		Countries	Countries	Countries	Countries	
	1,000	1,000	1,000	1,000	1,000	1,000
	m.t.	m.t.	m.t.	m.t.	m.t.	m.t.
<u>Nitrogen</u>						
1959-60	3,931	555	102	574	1,046	2,973
1960-61	4,327	548	59	574	1,087	3,115
<u>P<sub>2</sub>O<sub>5</sub></u>						
1959-60	3,914	520	11	521	268	3,557
1960-61	3,929	517	11	505	256	3,562
<u>K<sub>2</sub>O</u>						
1959-60	3,631	909	469	970	785	3,191
1960-61	3,812	943	480	1,027	849	3,236

1/ OECD Countries: Austria, Belgium, Denmark, France, West Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Source: "Fertilizers in Europe, Production, Consumption, Prices and Trade, 11th Study, 1959-62," The Organization for Economic Cooperation and Development, Paris.

Imports from Canada constitute a large share of U.S. fertilizer imports (table 12). Nitrogen and phosphate plants are strategically located to serve agricultural areas along the northern U.S. border. Potash from Europe has successfully competed along the Eastern seaboard. Recently a potash facility began production in Canada and a considerable movement into the United States is expected during the current fertilizer year, primarily to the Midwest.

Ammonium sulfate, phosphate rock, concentrated superphosphate and potassium chloride are exported by the United States in the largest volume (table 13). U.S. exports of anhydrous ammonia increased in recent years but is down in the current year due to the start-up of Mexican plants. Domestic producers are likely to fill export orders for potassium chloride from Canadian production as rapidly as their subsidiaries in Canada are able to develop deposits and produce the potash salts. This will tend to reduce domestic exports.

Table 10. -- PHOSPHATE: production, consumption and foreign trade of leading countries, 1960-61  
(metric tons of P<sub>2</sub>O<sub>5</sub>)

	Rank	Production	Rank	Imports	Rank	Exports	Rank	Consumption	Phosphate rock production
United States	1	2,549,000	4	61,000	2	213,000	1	2,493,838	18,050,000
USSR	2	920,000*	-	--	9	42,100	3	823,000	3,200,000*
France	3	769,500	1	176,300	7	66,400	2	877,400	36,000* 1/
West Germany	4	749,800	5	58,700	4	101,700	4	652,000	--
Australia	5	571,741	-	--	-	--	5	573,906	8,000 1/
Japan	6	514,610	-	--	13	23,000	6	491,790	--
Italy	7	396,750	-	--	10	40,854	8	379,000	--
United Kingdom	8	392,400	12	33,200	-	--	7	418,000	--
Belgium	9	354,766	17	17,987	1	253,457	-	--	8,000
Spain	10	299,115	-	--	15	9,109	9	279,381	--
Netherlands	11	223,700	8	57,000	3	153,000	18	112,100	--
New Zealand	12	216,972	-	--	-	--	10	221,177	--
Poland	13	207,073	-	--	-	--	12	180,400 1/	40,679
Canada	14	181,049 1/	9	41,533 1/	6	89,184 1/	15	133,398 1/	--
East Germany	15	165,750	7	57,065	-	--	11	209,700 1/	--
South Africa	16	151,402	-	--	-	--	13	159,380	180,919
Luxembourg	17	128,341	-	--	5	98,447	-	--	--
Czechoslovakia	18	118,366 1/	-	--	-	--	14	158,961 4/	--
Sweden	19	110,615	-	--	-	--	19	103,294	--
Portugal	20	80,234	-	--	14	10,465	-	--	--
Finland	-	--	18	16,426	-	--	20	96,477	--
Denmark	-	--	10	40,050	-	--	17	116,900	--
Ireland	-	--	14	22,683	-	--	-	--	--
Korea, South	-	--	3	119,443 1/	-	--	16	119,443 1/	--
Austria	-	--	6	57,575	-	--	-	--	--
Tunisia	-	--	-	--	8	53,010 1/	-	--	2,100,800
Hungary	-	--	2	120,212	11	34,282 3/	-	--	--
Peru	-	--	-	--	12	32,025 1/	-	--	100,000* 1/
Switzerland	-	--	11	35,500	-	--	-	--	--
Pakistan	-	--	19	13,650	-	--	-	--	--
Rhodesia and Nyasaland	-	--	20	9,080	-	--	-	--	--
Brazil	-	--	13	28,734	-	--	-	--	233,592 1/
Chile	-	--	15	21,600 1/	-	--	-	--	20,000 1/
Yugoslavia	-	--	16	18,594	-	--	-	--	--
World Total		10,050,000		1,190,000		1,220,000		9,970,000	36,250,000

\*Unofficial figures

1/ 1959-60

2/ 1958-59

3/ Tons of product

4/ Includes ground rock

Source: Fertilizers - An Annual Review of World Production, Consumption and Trade, 1961.  
Food and Agriculture Organization of The United Nations.

Table 11. -- POTASH: production, consumption and foreign trade of leading countries, 1960-61  
(metric tons of K<sub>2</sub>O)

	Rank	Production	Rank	Imports	Rank	Exports	Rank	Consumption
United States	1	2,045,000	4	252,000	4	439,000	1	2,031,176
West Germany	2	1,910,200	-	--	2	878,000	2	1,005,800
East Germany	3	1,666,000	-	--	1	1,092,000	6	499,400
France	4	1,580,700	-	--	3	750,800	4	749,910
USSR	5	1,040,000*	-	--	5	261,600	3	766,000
Spain	6	264,966	-	--	6	188,463	17	95,042
Israel	7	92,398	-	--	7	76,600	-	--
Italy	8	52,620	10	104,383	-	--	14	102,000
Chile	9	11,372 2/	-	--	-	--	-	--
Netherlands	10	2,700	7	176,800	-	--	12	138,200
Peru	11	2,185 2/	-	--	-	--	-	--
Sweden	12	1,872	15	86,914	-	--	20	83,912
Japan	-	--	1	603,340	-	--	5	600,940
United Kingdom	-	--	2	439,000	-	--	7	438,600
Czechoslovakia	-	--	5	246,755 2/	-	--	9	190,988
Denmark	-	--	6	192,800	-	--	10	182,050
Belgium	-	--	8	163,000	-	--	11	165,865
Brazil	-	--	9	104,535	-	--	13	104,535
Finland	-	--	11	96,146	-	--	15	96,146
Yugoslavia	-	--	12	96,111	-	--	16	96,111
Austria	-	--	16	85,432	-	--	18	86,479
Canada	-	--	13	90,295 1/	-	--	19	84,935 1/
New Zealand	-	--	17	67,625	-	--	-	--
Ireland	-	--	18	65,496	-	--	-	--
Poland	-	--	3	316,851	-	--	8	312,900 1/
Norway	-	--	14	91,200	-	--	-	--
Switzerland	-	--	19	41,000	-	--	-	--
Taiwan	-	--	20	36,240	-	--	-	--
World Total		8,670,000		3,730,000		3,700,000		8,540,000

\*Unofficial figures

1/ 1959-60

2/ 1958-59

Source: Fertilizers - An Annual Review of World Production, Consumption and Trade, 1961.  
Food and Agriculture Organization of The United Nations.

Table 12.-- U. S. Imports of Selected Fertilizer Materials by Country of Origin, 1961-62 <sup>1/</sup>  
(short tons of material)

Country of Origin	Ammonium		Calcium		Urea		Synthetic		Potassium		Potassium		Fertilizer	
	sulfate	nitrate	nitrate	nitrate			nitrogenous	phosphate	chloride	sulfate	sulfate	sodium-	substance	
		32% & less:					materials:	crude				nitrate:		
Canada	149,105	3,735	--	47,745	28,490	--	--	11	--	--	--	--	7,725	
Mexico	--	--	--	--	--	--	--	9,343	--	--	--	--	13,460	
Trinidad	--	--	--	4,256	--	--	--	--	--	--	--	--	--	
Netherlands Antilles	--	--	--	--	--	--	--	119,555	--	--	--	--	--	
Chile	--	--	--	--	--	--	--	--	--	--	--	25,711	28,603	
Brazil	--	--	--	--	--	--	--	--	--	--	--	--	641	
Argentina	--	--	--	--	--	--	--	--	--	--	--	--	92	
Norway	--	--	11,237	16,883	22,678	--	--	--	--	--	--	--	--	12
United Kingdom	--	--	--	7,665	--	--	--	--	--	--	--	--	--	--
Netherlands	38,679	68,008	19,262	8,918	9,184	--	--	--	--	--	--	--	--	--
Belgium	13,338	25	100	16,059	204	--	--	--	--	--	--	--	--	--
France	--	--	--	--	--	--	--	--	18,549	2,829	--	--	--	--
West Germany	48,677	22,035	10,296	17,299	7,355	--	--	--	129,852	28,190	--	--	--	--
Switzerland	--	--	--	293	--	--	--	--	132,978	32,518	40	--	2,300	
USSR	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Spain	--	--	--	--	--	--	--	--	8,433	--	--	--	--	--
Italy	20,094	17,211	--	1,410	--	--	--	--	40,557	3,408	--	--	--	--
Japan	--	90	--	16,757	--	--	--	--	--	24,531	--	--	--	--
New Zealand	--	--	--	--	--	--	--	--	--	--	--	--	22	
Republic of South Africa	--	--	--	11	--	--	--	--	--	--	--	--	--	--
TOTAL	269,893	111,104	40,895	137,296	67,911	126,898	330,380	91,476	25,751	52,855				

<sup>1/</sup> Other materials imported, mainly from Canada, were the following: 186,256 tons of ammonium nitrate over 32%; 74,842 tons of nitrogen solutions; 39,754 tons of calcium cyanamide; 144,930 tons of ammonium phosphates; 8,802 tons of normal superphosphate; 22,536 tons of concentrated superphosphate; 746 tons of ammoniated superphosphate; 7,568 tons of potassium nitrate; 60,201 tons of compound fertilizers; 207,046 tons of mixed fertilizers; also 9,562 tons of castor pomace from Brazil; 9,445 tons of guano from Peru; and 490,336 tons of nitrate of soda from Chile and West Germany. Small imports of organic materials and potash salts are not listed.



Table 13. -- U. S. Exports of Selected Fertilizer Materials by Destination, 1961-62  
(short tons of material)

Destination	Ammonium sulfate	Anhydrous ammonia & aqua (NH <sub>3</sub> )	Ammonium nitrate	Urea	Phosphate rock (all)	Normal superphosphate	Concentrated superphosphate	Potassium chloride	Ammonium phosphates	Mixed fertilizers
Canada	2,089	949	279	1,327	1,004,446	106,837	72,100	102,873	4,950	5,753
Mexico	407	78,745	2,571	843	95,068	50	27,528	17,286	17,351	9,716
Central America	211	12	123	3,584	449	739	3,242	597	7,287	19,563
West Indies, British	858	362	571	346	31	432	168	412	27	8,044
West Indies, Other	10,065	92	200	130	--	--	4,719	3,512	1,211	2,590
Colombia	--	3	408	20	3,928	--	3,689	4,700	4,692	4,428
Venezuela	--	30	--	137	5,300	--	10,699	3,425	519	8,726
Peru	--	--	8,942	11	12,103	--	90	50	325	--
Chile	--	--	4,946	2	500	3,479	34,340	4,000	2	370
Brazil	7,477	--	--	--	57,294	16,975	37,443	40,534	11	10
Uruguay	1,109	--	--	110	13,488	--	--	1,652	223	766
Argentina	--	--	--	4	--	--	1,030	165	--	5,180
South America, Other	--	3	631	644	--	--	472	710	814	2,721
Sweden	--	--	48	2	54,644	225	--	2,205	--	--
Denmark	--	--	--	--	45,634	45	--	--	--	22
United Kingdom	--	26	--	9	334,278	--	3	679	32	--
Netherlands	--	--	--	--	185,065	--	55,535	624	5,534	75
West Germany	--	--	--	--	331,599	--	--	--	--	--
Finland	--	--	--	--	15,389	--	--	--	--	--
Spain	24,695	--	--	12	170,303	--	--	--	164	15
Italy	--	--	--	72	783,339	--	--	30,680	--	415
Greece	--	--	100	32	--	--	--	--	660	304
Europe, Other	12	4	269	173	36,611	--	--	--	158	53
India	43,779	4	--	--	--	--	1,653	--	11,198	--
Pakistan	11	32	--	3,775	69	--	27	11,583	--	--
Thailand	12	--	204	2	--	--	10	34	1,794	741
Viet-Nam	57,730	--	--	11,656	18,106	--	1,177	6,244	2,772	5
Indonesia	--	--	--	--	--	--	43,509	57	31	--
Philippines	--	--	93	--	38,305	--	550	19,084	3,338	84
Korea	281,784	--	16,098	69,397	--	--	188,289	22,183	22	--
Taiwan	--	--	--	--	66,644	--	--	27,220	11,485	--
Japan	--	--	--	--	1,416,442	--	11	359,574	--	3
Asia, Other	43	--	110	12	--	--	4,200	13	110	388
Australia	--	--	783	--	--	--	15	46,370	86	538
New Zealand	--	--	7	233	--	--	--	53,816	299	2,114
Union of South Africa	--	--	43	--	--	--	--	14,865	470	206
Africa, Other	--	253	1,205	46	--	--	--	--	150	1,127
TOTAL	430,282	80,515	37,631	92,579	4,689,035	128,782	490,499	775,147	75,715	73,957

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